

# LARKIN

## HORIZONTAL AIR DISCHARGE OUTDOOR DISCUS CONDENSING UNIT

**MODEL LDH**  
**3 to 10 HP**



**LDH-92 (10/94)**

# LDH OUTDOOR DISCUS CONDENSING UNIT

LDH Outdoor Discus Condensing Units, Horizontal Air Discharge

## New Leak Resistant Design!

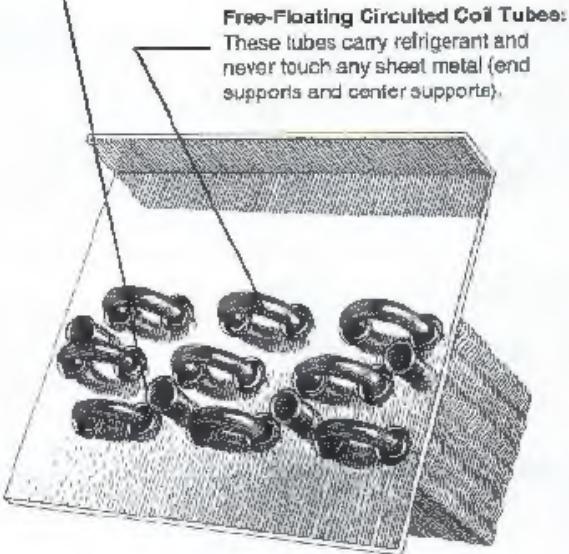
The LDH Outdoor Discus Condensing Unit features a new leak resistant design which includes:

1. The patented fully floating tube condenser coil. Refrigerant carrying copper tubes do not contact any metal support tubes; instead, the coil is constructed with expanded anchor tubes which support the coil construction and do not carry refrigerant. The coil design eliminates one of the major causes of leaks in refrigeration systems.
2. Can be applied with HFC-404A or HFC-507.
3. Pre-bent copper tubes minimize welded joints on internal piping.
4. All sweat type connections, no flare joints to leak.
5. Fixed high pressure switch eliminates capillary tube.
6. HCFC-22 models available for all temperature applications.
7. Sentronic oil safety control.

## Standard Features

- High efficiency Copeland Discus compressors with POE oil.
- Thermally protected permanently lubricated PSC condenser fan motor(s).
- Electrical controls including compressor contactor and optional defrost control are located in easily accessible control box with a hinged cover.
- Receivers are sized for sufficient pumpdown capacity with inlet and outlet service valves.
- Cabinet is constructed from rugged prepainted steel.
- Convenient access panels for easy servicing to internal components.
- Suction and discharge vibration eliminators.
- 180-lb. head pressure valve and crankcase heater for winter operation.
- Separate subcooling circuit in condenser for added capacity and vapor free liquid.
- Demand cooling on low temp. HCFC-22 models.
- Liquid line filter drier and sight glass.
- Pressure relief valve on receiver.

**Expanded (Locked) Auxiliary Tubes:**  
These tubes support the coil with fins and refrigerant carrying tubes. They do not carry refrigerant and are tightly fitted on end supports and center supports.



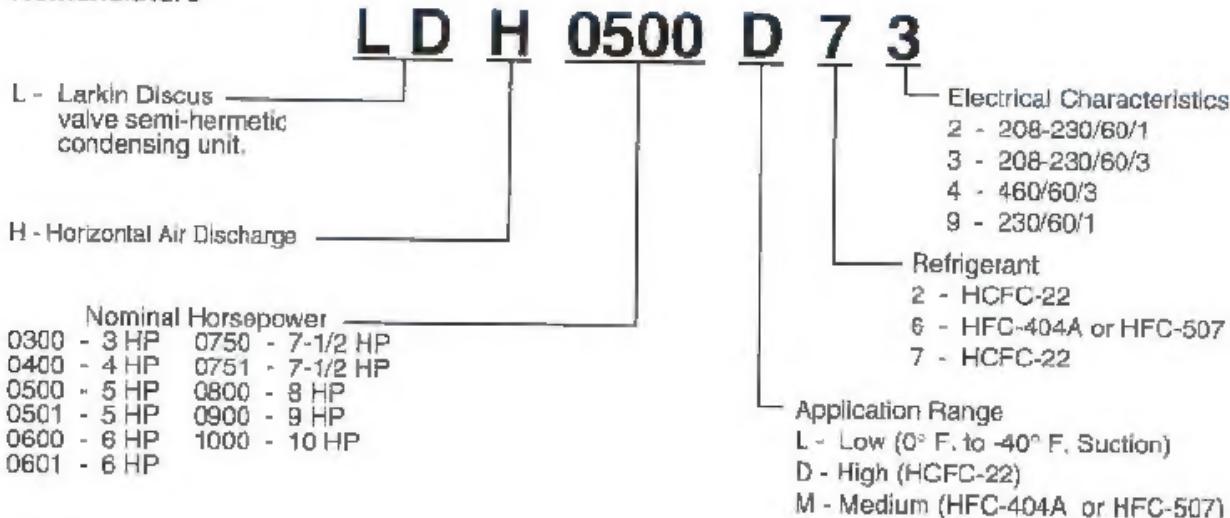
## Optional Features

- Liquid line solenoid valve-mounted.
- Suction filter.
- Suction accumulator.
- Oil separator.
- Fused disconnect switch.
- Off cycle defrost timer.
- Electric defrost kits:
  - A. Includes defrost timer, heater and fan contactors and terminal strip for unit coolers.
  - B. Includes defrost timer, heater and fan contactors, terminal strip and fusing for heater and fan loads.
- Coated condenser coils for protection against metal erosion in harsh environments.
- 100-lb. head pressure valve or dual ORO/ORD valves for floating head pressure control.
- Insulated and heated receiver.
- Second pre-piped receiver for additional capacity.



# LDH OUTDOOR DISCUS CONDENSING UNIT

## Nomenclature



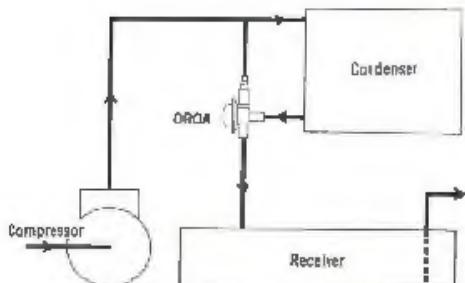
## Head Pressure Control

Refrigeration condensing units must efficiently perform at varying ambient conditions. A properly sized unit will adequately perform at even the highest summer ambient temperatures. However, in situations where the system must operate the majority of the time at less than design temperature, a means of providing adequate head pressure for refrigerant flow is desirable. The LDH unit has several methods of head pressure control available.

### 1. Three-Way Flooding Valve (Standard).

The simplest and most economical means of providing a stable head pressure in low ambients. The valve (as shown) will maintain 180 lb. PSIG in the receiver. This is accomplished by the modulation of the valve regulating flow from the condenser and the discharge line. It provides a minimum head pressure to insure refrigerant flow at the expansion valve (TXV). It also provides hot gas to the receiver for cold start situations.

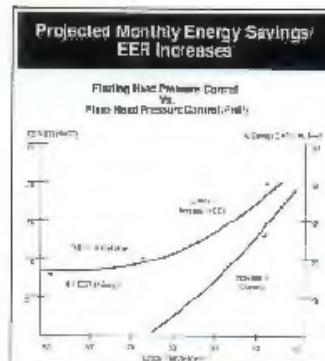
### Three-Way Flooding Valve Piping Arrangement



### 2. Larkin Floating Head Pressure Valve (Optional)

The Larkin Floating Head Pressure Valve varies from the standard three-way flooding valve in that it allows the head pressure to drop during lower ambient conditions to realize greater energy savings. This occurs because the compressor can produce the same capacity utilizing less energy. An additional benefit is that the operation of the system at these lower pressures can reduce compression ratio and allow liquid refrigerant in the condenser to become subcooled. This will enhance system operation and dramatically reduce system run time. A long term benefit is that by reducing compression ratio, the life expectancy of the compressor will be extended.

The energy savings associated with a Larkin Floating Head Pressure Valve system can be substantial as the ambient temperature drops (see chart). However, as the receiver pressure drops the pressure differential available for refrigerant flow at the TXV drops. Typically, expansion valves are oversized by one increment from the standard selection to improve flow. This does not affect valve performance in summer ambients as most expansion valves will maintain stable superheat down to 60 percent of their rating.

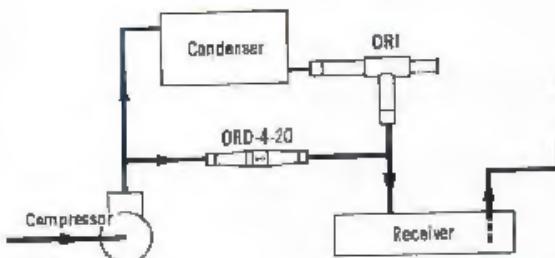


# LDH OUTDOOR DISCUS CONDENSING UNIT

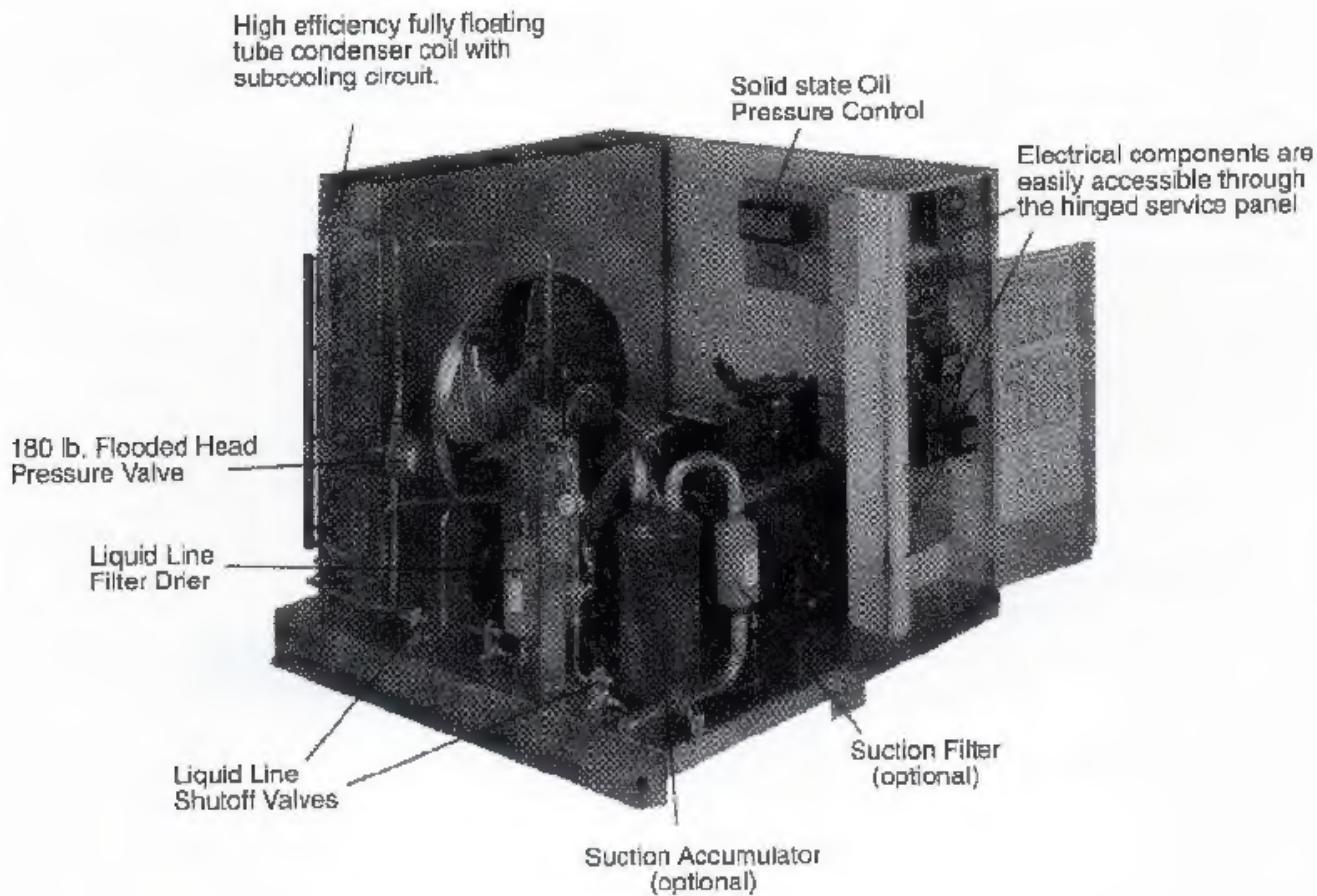
### 3. Adjustable Two-Valve Head Pressure System.

This is similar in principle (and benefits) to the Larkin Floating Head Pressure Valve in that there is a modulation of refrigerant flow from the condenser to the receiver and also a bypass from the discharge line to maintain receiver pressure. The difference in the two-valve system is that the valves are adjustable so that receiver pressure can be raised or lowered depending on application situations of the particular job.

### Two-Valve Piping Arrangement



### Features



# LDH OUTDOOR DISCUS CONDENSING UNIT

## Performance

Model Number	Compressor Model	Capacity BTU/H @ 95° F. / 35° C. Ambient Temperature							
		Evaporator Temperature ° F. / ° C.							
		40° F. / 4.4° C. BTU/H - K/CAL	35° F. / 1.7° C. BTU/H - K/CAL	30° F. / -1.1° C. BTU/H - K/CAL	25° F. / -3.9° C. BTU/H - K/CAL	20° F. / -6.7° C. BTU/H - K/CAL	15° F. / -9.4° C. BTU/H - K/CAL	10° F. / -12.2° C. BTU/H - K/CAL	
Med. Temp. HCFC-22	LDH0500D7	2DC3-050E  58760 14808	54160  13648	49560  12489	45130  11373	40880  10302	36955  9313	33030  8324	
	LDH0501D7	2DD3-050E  66190 16680	61125  15403	56060  14127	51150  12890	46400  11693	42010  10587	37620  9480	
	LDH0750D7	2DL3-075E  85010 21423	78290  19729	71570  18036	65110  16408	58910  14845	53215  13410	47520  11975	
	LDH0751D7	2DA3-075E  94110 23716	86750  21861	79390  20006	72330  18227	65540  16516	59285  14940	53030  13364	
	LDH0800D7	3DA3-075E  113470 28594	104405  26310	95340  24026	86960  21914	78730  19840	71170  17935	63610  16030	
	LDH1000D7	3DE3-100E  133280 33587	123330  31079	113380  28572	102280  25775	92630  23343	83755  21108	74880  18670	
Low Temp. HCFC-22		0° F. / -17.8° C.  -10° F. / -23.3° C.	-15° F. / -26.1° C.  -20° F. / -28.9° C.	-25° F. / -31.7° C.  -30° F. / -34.4° C.	-35° F. / -31.7° C.  -40° F. / -40° C.				
	LDH0300L2	2DF3-030E  29970 7552	22600  5695	19690  4962	16780  4228	14450  3641	12120  3054	8170  2059	
	LDH0400L2	2DL3-040E  34620 8724	26780  6749	23350  5884	19920  5019	17040  4294	14160  3568	9590  2517	
	LDH0600L2	2DB3-060E  41440 10443	32090  8087	28185  7103	24280  6119	21045  5303	17B10  4488	12380  3119	
	LDH0601L2	3DA3-060E  48810 12300	37690  9498	33030  8324	28370  7149	24525  6180	20680  5211	14340  3614	
	LDH0750L2	3DB3-075E  57020 14369	44570  11232	39395  9928	34220  8623	29880  7555	25540  6436	18060  4551	
	LDH0900L2	3DF3-090E  69780 17585	54540  13744	47925  12077	41310  10410	36205  9124	31100  7837	22620  5700	
Med. Temp. HFC-404A & HFC-507	LDH1000L2	3DS3-100E  74490 18771	58330  14699	51390  12950	44450  11201	38540  9712	32630  8223	23074  5814	
		30° F. / -1.1° C.  -10° F. / -23.3° C.	25° F. / -3.9° C.  -20° F. / -28.9° C.	20° F. / -6.7° C.  -15° F. / -9.4° C.	15° F. / -12.2° C.  10° F. / -17.8° C.	10° F. / -12.2° C.  0° F. / -17.8° C.	-10° F. / -23.3° C.		
	LDH0500M6	2DC3-050E  48200 12146	43500  10962	39800  9979	35800  9022	32000  8064	25800  6502	21900  5519	
	LDH0501M6	2DD3-050E  55000 13860	50600  12751	46000  11592	41700  10508	37300  9400	30400  7661	25600  6451	
	LDH0750M6	2DL3-075E  70800 17842	64400  16229	58600  14767	53100  13881	47500  11970	39000  9828	33700  8492	
	LDH0751M6	2DA3-075E  78900 19883	72300  18220	65000  16632	60100  15145	54200  13658	45400  11441	40000  10080	
Low Temp. HFC-404A & HFC-507	LDH0800M6	3DA3-075E  93500 23562	86700  21596	78200  19706	71400  17993	64500  16254	53700  13532	46800  11794	
	LDH1000M6	3DB3-100E  109400 27569	101200  25502	92500  23310	84500  21294	76400  19253	64200  16178	56500  14238	
		0° F. / -17.8° C.  -10° F. / -23.3° C.	-15° F. / -26.1° C.  -20° F. / -28.9° C.	-25° F. / -31.7° C.  -30° F. / -34.4° C.	-35° F. / -31.7° C.  -40° F. / -40° C.				
	LDH0300L8	2DF3-030E  31680 7983	25600  6451	22500  5670	19700  4964	16900  4259	14500  3654	10300  2596	
	LDH0400L8	2DL3-040E  36930 9306	30000  7560	26400  6653	23400  5897	20300  5116	17500  4410	12600  3175	
	LDH0600L8	2DB3-060E  43360 10927	35700  8996	31800  8014	28000  7056	24300  6124	21200  5342	15500  3906	
	LDH0601L8	3DA3-060E  51020 12857	41800  10534	37200  9374	32600  8215	28500  7182	24900  6275	18400  4637	
	LDH0750L8	3DB3-075E  58250 14879	48200  12146	43100  10861	37800  9526	33400  8417	28800  7258	21600  5443	
	LDH0900L8	3DF3-090E  72160 18184	59400  14969	52600  13230	46800  11794	41000  10332	36700  8996	26800  6754	
	LDH1000L8	3DS3-100E  77930 19538	64800  16330	58000  14616	51100  12877	45000  11340	39600  9979	29500  7434	

# LDH OUTDOOR DISCUS CONDENSING UNIT

## Specifications

Model	Compressor		Connections		Receiver (90% Full)		Approx. Shipping Weight LBS/KG
	Model	HP	Liquid IN/CM	Suction IN/CM	Standard LBS/KG	Optional* LBS/KG	
LDH0500D7/M6	2DC3-050E	5	1/2 1.27	1 1/8 2.86	40 18.1	65 29.5	650 294.8
LDH0501D7/M6	2DD3-050E	5	1/2 1.27	1 1/8 2.86	40 18.1	65 29.5	650 294.8
LDH0750D7/M6	2DL3-075E	7.5	5/8 1.59	1 1/8 2.86	80 36.3	105 47.6	850 385.6
LDH0751D7/M6	2DA3-075E	7.5	5/8 1.59	1 1/8 2.86	80 36.3	105 47.6	850 385.6
LDH0800D7/M6	3DA3-075E	8	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	875 396.9
LDH1000D7/M6	3DB3-100E	10	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	900 408.2
LDH0300L2/L6	2DF3-030E	3	1/2 1.27	1 1/8 2.86	40 18.1	65 29.5	650 294.8
LDH0400L2/L6	2DL3-040E	4	1/2 1.27	1 1/8 2.86	40 18.1	65 29.5	650 294.8
LDH0600L2/L6	2DB3-060E	6	1/2 1.27	1 1/8 2.86	40 18.1	65 29.5	650 294.8
LDH0601L2/L6	3DA3-060E	6	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	850 385.6
LDH0750L2/L6	3DB3-075E	7.5	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	850 385.6
LDH0900L2/L6	3DF3-090E	9	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	875 396.9
LDH1000L2/L6	3DS3-100E	10	5/8 1.59	1 3/8 3.49	80 36.3	105 47.6	900 408.2

\*Total receiver capacity based on an optional second receiver included in the system.

# LDH OUTDOOR DISCUS CONDENSING UNIT

## Electrical Data

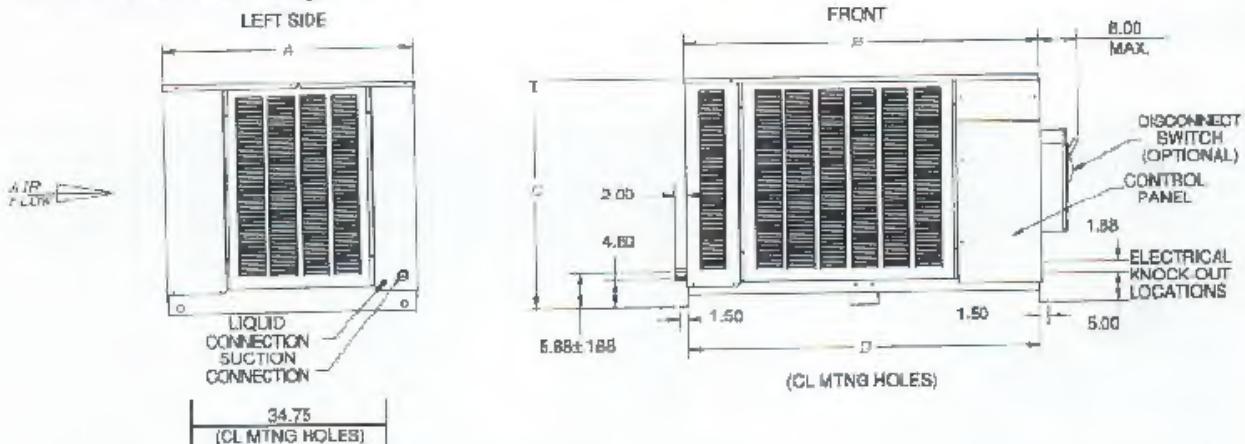
Model Numbers	Compressor	Power Supply	Compressor		Condenser Fan Motor		Air Defrost		Electric Defrost Units				Reduced Amps Elec. Def. Units <sup>1</sup>				
			RLA	LRA	Qty.	HP	FLA	MCA	MOP	MCA	NOP	Unit Colder Amps		MCA	MOP	Motors	Heaters
												Fan	Defrost				
LDH0500D7/M63	2DC3-050E	208-230/60/3	20.0	120	1	1/3	3.5	28.5	40	39.0	50	8.8	39.0	-	-	-	-
LDH0500D7/M64	2DC3-050E	460/60/3	9.4	60	1	1/2	1.9	13.6	20	20.0	25	4.4	20.0	18.0	25	4.4	18.0
LDH0500D7/M65	2DC3-050E	575/60/3	6.9	49	1	1/2	1.2	9.9	15	13.8	15	3.9	13.1	-	-	-	-
LDH0501D7/M63	2DD3-050E	208-230/60/3	20.0	120	1	1/3	3.5	26.5	40	39.0	50	8.8	39.0	-	-	-	-
LDH0501D7/M64	2DD3-050E	460/60/3	9.4	60	1	1/2	1.9	13.7	20	20.0	25	4.4	20.0	18.0	25	4.4	18.0
LDH0501D7/M65	2DD3-050E	575/60/3	7.1	49	1	1/2	1.2	10.1	15	14.0	20	3.9	13.1	-	-	-	-
LDH0750D7/M63	2DL3-075E	208-230/60/3	28.3	169	2	1/3	7	42.4	60	68.0	80	15.0	68.0	65.0	80	15.0	65.0
LDH0750D7/M64	2DL3-075E	460/60/3	12.4	85	2	1/2	3.8	19.3	30	40.0	50	7.8	40.0	25.0	30	4.8	25.0
LDH0750D7/M65	2DL3-075E	575/60/3	11.9	67	2	1/2	2.4	17.2	25	21.1	30	3.9	13.1	-	-	-	-
LDH0751D7/M63	2DA3-075E	208-230/60/3	28.7	169	2	1/3	7	42.9	60	68.0	80	15.0	68.0	65.0	80	15.0	65.0
LDH0751D7/M64	2DA3-075E	460/60/3	12.6	85	2	1/2	3.8	19.6	30	40.0	50	7.8	40.0	25.0	30	4.8	25.0
LDH0751D7/M65	2DA3-075E	575/60/3	11.9	67	2	1/2	2.4	17.3	25	21.2	30	3.9	13.1	-	-	-	-
LDH0800D7/M63	3DA3-075E	208-230/60/3	36.8	215	2	1/3	7	53.0	80	88.0	90	15.0	68.0	65.0	90	12.0	65.0
LDH0800D7/M64	3DA3-075E	460/60/3	17.9	106	2	1/2	3.8	26.2	40	40.0	50	7.8	40.0	-	-	-	-
LDH0800D7/M65	3DA3-075E	575/60/3	14.7	84	2	1/2	2.4	20.8	30	25.0	40	4.2	20.8	-	-	-	-
LDH1000D7/M63	3DB3-100E	208-230/60/3	39.1	215	2	1/3	7	55.9	80	82.0	90	22.9	82.0	65.0	90	9.1	65.0
LDH1000D7/M64	3DB3-100E	460/60/3	17.9	106	2	1/2	3.8	26.2	40	48.0	50	11.5	48.0	45.0	50	11.5	45.0
LDH1000D7/M65	3DB3-100E	575/60/3	14.8	84	2	1/2	2.4	20.9	30	41.8	50	4.2	41.8	-	-	-	-
LDH0300L2/L63	2DF3-030E	208-230/60/3	15.1	102	1	1/3	3.5	22.4	30	31.2	40	8.8	30.5	25.0	40	2.7	26.0
LDH0300L2/L64	2DF3-030E	460/60/3	8.2	52	1	1/2	3.8	13.4	20	17.8	25	4.4	10.0	-	-	-	-
LDH0300L2/L65	2DF3-030E	575/60/3	6.0	41	1	1/2	1.2	8.7	15	12.6	15	3.9	10.0	-	-	-	-
LDH0400L2/L63	2DL3-040E	208-230/60/3	23.6	161	1	1/3	3.5	33.0	50	41.8	60	8.8	39.0	-	-	-	-
LDH0400L2/L64	2DL3-040E	460/60/3	9.2	60	1	1/2	3.8	13.4	20	20.0	25	4.4	20.0	18.0	25	4.4	18.0
LDH0400L2/L65	2DL3-040E	575/60/3	6.9	49	1	1/2	1.2	9.9	15	13.8	20	3.9	13.1	-	-	-	-
LDH0600L2/L63	2DB3-060E	208-230/60/3	25.3	161	2	1/3	7.0	35.2	50	44.0	60	8.8	39.0	-	-	-	-
LDH0600L2/L64	2DB3-060E	460/60/3	11.9	80	2	1/2	3.8	16.8	25	21.2	30	4.4	20.0	-	-	-	-
LDH0600L2/L65	2DB3-060E	575/60/3	8.6	63	2	1/2	2.4	12.0	20	15.9	20	3.9	13.1	-	-	-	-
LDH0601L2/L63	3DA3-060E	208-230/60/3	24.0	150	2	1/3	7.0	37.0	60	45.8	60	8.8	39.0	45.0	60	8.0	39.0
LDH0601L2/L64	3DA3-060E	460/60/3	10.8	77	2	1/2	3.8	17.3	25	21.7	30	4.4	20.0	-	-	-	-
LDH0601L2/L65	3DA3-060E	575/60/3	9.4	62	2	1/2	2.4	14.2	20	18.1	25	3.9	13.1	-	-	-	-
LDH0750L2/L63	3DB3-075E	208-230/60/3	28.2	161	2	1/3	7.0	42.3	60	68.0	80	15.0	68.0	65.0	80	15.0	65.0
LDH0750L2/L64	3DB3-075E	460/60/3	14.4	83	2	1/2	3.8	21.8	30	40.0	50	4.8	40.0	30.0	40	4.8	30.0
LDH0750L2/L65	3DB3-075E	575/60/3	9.9	67	2	1/2	2.4	14.7	20	18.0	25	3.9	13.1	-	-	-	-
LDH0900L2/L63	3DF3-090E	208-230/60/3	35.0	215	2	1/3	7.0	50.8	80	68.0	80	15.0	68.0	65.0	80	14.0	65.0
LDH0900L2/L64	3DF3-090E	460/60/3	15.1	106	2	1/2	3.8	22.7	30	40.0	50	4.8	40.0	30.0	40	4.8	30.0
LDH0900L2/L65	3DF3-090E	575/60/3	14.7	84	2	1/2	2.4	20.8	30	25.0	40	4.2	20.8	-	-	-	-
LDH1000L2/L63	3DS3-100E	208-230/60/3	37.7	215	2	1/3	7.0	54.1	80	69.1	90	15.0	68.0	65.0	80	10.8	65.0
LDH1000L2/L64	3DS3-100E	460/60/3	16.7	108	2	1/2	3.8	24.6	40	40.0	50	4.8	40.3	30.0	40	4.8	30.0
LDH1000L2/L65	3DS3-100E	575/60/3	15.1	84	2	1/2	2.4	21.2	30	25.4	40	4.2	20.8	-	-	-	-

MCA = Minimum Circuit Ampacity

MOP = Maximum Overcurrent Protection

<sup>1</sup>Reduced nameplate amperage (if applicable) must be requested at time of order.

## Dimensional Diagrams



## Dimensions

Model No.	Dimensions				No. Fans
	A IN/CM	B IN/CM	C IN/CM	D IN/CM	
LDH0500D7/M6	43-3/8 110.19	45-1/4 114.94	39-1/4 99.70	43-7/8 111.46	1
LDH0501D7/M6	43-3/8 110.19	45-1/4 114.94	39-1/4 99.70	43-7/8 111.46	1
LDH0750D7/M6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH0751D7/M6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH0800D7/M6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH1000D7/M6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH0300L2/L6	43-3/8 110.19	45-1/4 114.94	39-1/4 99.70	43-7/8 111.46	1
LDH0400L2/L6	43-3/8 110.19	45-1/4 114.94	39-1/4 99.70	43-7/8 111.46	1
LDH0600L2/L6	43-3/8 110.19	45-1/4 114.94	39-1/4 99.70	43-7/8 111.46	1
LDH0601L2/L6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH0750L2/L6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH0900L2/L6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2
LDH1000L2/L6	43-3/8 110.19	64-1/4 163.20	39-1/4 99.70	62-7/8 159.72	2

Since products improvement is a continuing effort at Heatcraft, we reserve the right to make changes in specifications without notice.

A Product Line of

**HEATCRAFT** Inc.

Refrigeration Products Division

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